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For exchange of information  
on nutrition programs  
and activities

**NUTRITION**

**PROGRAM NEWS**

U. S. DEPARTMENT OF AGRICULTURE, WASHINGTON, D. C.

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## ADAPTING NUTRITION FACTS . . . AN EXAMPLE

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Mass media tends to focus on the "growing-edge" of research—it presents clues suggesting new directions in nutrition and health that may not yet be established by research as fact. On the other hand, the many substantial facts that have stood the test of time and so have less news value are somewhat neglected. The question of fat in the diet is a case in point.

The public has been exposed to words like saturated fats, polyunsaturates, and cholesterol, not only as these terms relate to food, but as they relate to health.

Without a good background in science, it is difficult to sift the established from the preliminary, and to put isolated facts in a proper context that is meaningful. For example, the layman may have become concerned about cholesterol levels in the blood. He may have heard that vegetable fats high in linoleic acid lead to lowering of blood cholesterol. He may not understand, however, that cholesterol is a normal constituent of blood and tissues or that any interrelationships with other nutrients exist. He often believes that any animal fat in his diet can lead to trouble, but he may not know that the total fat, as well as the total calories, should also be considered. To many laymen, calories are concerned only with weight control and have little bearing on any other nutritional problem.

Nutritionists and other workers in community programs report being questioned constantly on nutritional needs. Homemakers, particularly, ask how to select the foods and supplements that advertising has led them to believe are essential for the good nutrition of their families.

How can we as nutritionists keep abreast of current developments in research and be well enough informed to answer such questions? How can we give constructive help to other workers? One way is to get our information from recognized authorities who interpret research findings in the proper perspective.

In this issue of NPN, we present an example of how an article provides information that can be adapted to the needs of nutrition programs. We include a statement by

### New Executive Secretary for ICNE

Miss Mabel Walker is assuming the duties of executive secretary for the Interagency Committee on Nutrition Education. She replaces Mrs. Margaret Morris who resigned to become consumer specialist for the National Planning Organization.

Correspondence concerning State and local nutrition committees should be addressed to Miss Walker, Consumer and Food Economics Research Division, Agricultural Research Service, USDA, Federal Center Building, Hyattsville, Md. 20781.

Each year in the September-October issue, we publish the list of active committees and their chairmen. Unless we have the information by August 1, we must assume the last list received to be accurate. We have not heard from several committees in more than a year. Please bring us up to date.

Dr. Ruth M. Leverton, Assistant Administrator, Agricultural Research Service, USDA, made to the Animal Products Research Advisory Committee, concerning research on fats. A discussion of implications for nutrition programs follows the statement.

### STATEMENT BY DR. LEVERTON

Recommendations made by this Committee last year urged that every possible effort be made to expand research and hasten the solution of the national problem of animal fats in nutrition. More specifically it was recommended that we increase research to determine the influence of dietary components upon the use and synthesis of fat by the body at different ages and as related to obesity, health, and longevity.

It has been some 10 years since the controversy over fats began. Since that time numerous mere opinions have been parleyed to the public as facts, recommendations,



and even warnings. During these same 10 years, however, research has uncovered a lot of facts. Literally thousands of studies have been made in laboratories throughout the world.

Of course, we are still ignorant on many points, but about others we can be fairly certain. I want to review with you a few of these more certain facts as a common basis for our discussion today. The selected facts that follow have been summarized from many research studies including ours in ARS.

We are certain that the problem of fat in nutrition is entangled with our whole way of life.

We know that some kinds of heart disease may begin as a pediatric problem. Early atheromatous lesions (fatty-like patches inside the walls of blood vessels) have been found by different investigators, in children from 3 months to adulthood in New Orleans, in St. Louis, and in Haiti. By age 15, lesions were found in all of the cases observed more recently in Toronto. Such studies have not been made in Northeastern U. S. which records the highest rate of heart disease of any region of the U.S.

We are certain that the utilization of fats in man is regulated and affected in several ways:

1. *By our nutrition*—the food we eat all our lives. This area is the primary responsibility of Agriculture.

2. *By our endocrine system*—thyroids, adrenals, pituitary, pancreas, etc. This is one place where heredity comes in.

3. *By our activities*—our vocations, our exercise and physical work—sedentary, light or heavy—as well as by the stresses and strains of mental work and our job situations. Studies have demonstrated how emotions—fears, worry, tension—lead to mobilization of fatty acids and sugars into the blood stream and to other conditions favorable to development of arterosclerosis.

4. *By our aging*—when physiological processes begin to slow down, when enzyme mechanisms are unable to keep up with the usual pattern of eating, when some tissues throughout the body have become less active.

Let us come back to our primary research interest as well as your business interest—*the food we eat*.

It is the responsibility of Department of Agriculture to know the inherent values of the foods produced and the needs of all consumers for these values. It is also the responsibility of the USDA to be able to advise consumers of the selection of food assortments that will redound to their benefit. One distinguishing feature of USDA research is concern for the everyday foods of people of all ages for a vigorous and useful long life.

Here are some of the points which seem fairly certain. First, about dietary fats:

1. Diets high in fat, any fat, lead to high blood lipids

(fats, fatty acids, cholesterol, and other fat-like substances in the blood). High blood lipids are associated, along with other factors, with cardiovascular disease.

2. Americans, like people in Australia and in the more prosperous countries of Northern Europe, consume at least 40 percent of their calories from fat, mostly from animal sources.

3. Vegetable fats high in linoleic acid lead to lowering of blood cholesterol. Cholesterol is a normal constituent of blood, but excessive levels are not desirable.

4. However, too much of such vegetable fats can lead to many complications (such as an increased requirement for vitamin E to prevent tissue changes that are conducive to internal bleeding and anemias). Extremes in the direction of either animal or vegetable fats can be dangerous.

5. Only the middle of the road in choices and moderation in total fat consumption appear to be safe guidelines here.

More important than these relatively isolated facts about dietary fats, however, is the whole arena of dietary components including calories, carbohydrate, and protein and the interactions among these components.

1. We have long been concerned with *carbohydrates and their relation to fat metabolism*. Some of the experimental evidence has come from our laboratories and made newspaper headlines in mid-1959. Studies of experimental animals showed that the kind of carbohydrate in the diet influenced the amount of fat deposited in the body. Sugar which is quickly absorbed from the digestive tract and reaches the blood soon after ingestion, caused greater deposition of fat than the more complex and slowly digested starch.

Studies of the average American diet over the last 50 years show a steady increase in the proportion of carbohydrate from sugar and a decrease in the proportion from starch. About two-thirds of the carbohydrates used to come from starches and about one-third from sugars. Gradually we are reversing the pattern, and are now getting more from sugars than from starches.

2. Other dietary interrelationships involve *vitamins and minerals*. For example, vitamin B<sub>6</sub> and magnesium, as well as vitamin E, each important in fat metabolism, are scarcer in our food supplies of today, especially processed foods, than they once were. Also, as a result of water-softening procedures some of the magnesium is taken out of our drinking water, often substituting in its place sodium, of which many people already take too much in salt.

3. There are many reports on the effect of *protein on fat metabolism*. They do not all agree. In a prosperous country such as ours, protein, fat, and sugar consumption tend to rise together. The nutritional effects



are entangled with each other and are not easy to separate. More than a dozen studies with human subjects have been made recently on the effect of protein on fat metabolism, but the results vary. For example, in one study the addition of much milk to the diet as a source of additional protein made no differences in the blood cholesterol of college athletes in training.

In another study of some elderly people in an institution, additional protein lowered blood cholesterol. However, there were no records of the extent of protein depletion of the people before the additional protein was supplied or of how much the consumption of sweets dropped off when the diets were improved in protein. Nutrition answers obtained on people confined in an institution may not hold for a free living farm population, or for commuting suburbanites.

With these and other facts as a foundation, we must continue to study the problem of animal fats with the challenge of solving it in terms of everyday foods for every person throughout a vigorous, useful, long life.

## **IMPLICATIONS FOR COMMUNITY NUTRITION PROGRAMS**

Workers in some communities have been so concerned over the unnecessary distortions in the diets of normal individuals which have resulted from misinformation or misinterpretation of the facts about fats, that they have placed major emphasis on refuting isolated facts and practices at the expense of teaching the selection of an all-around good diet—a primary objective of community nutrition programs.

Both objectives are important and should be stressed.

### **Food patterns or guides**

Scientists have developed food patterns or guides that insure a good nutritional foundation and that can be modified whenever research indicates need for change. "Food for Fitness—A Daily Food Guide" is one such pattern.

This guide does not include a specific recommendation for fat intake, and research still does not indicate that such a recommendation be made. We can, however, interpret the guide to reflect our best knowledge about fat in the diet. (The guide was reviewed in light of the National Research Council's Recommended Daily Allowances and found to need only slight modification because of calcium allowances.)

Everyone needs to know how to select combinations of food that will meet nutrient requirements and maintain desirable weight. Not everyone needs or wants to know the scientific facts undergirding his selections. For these individuals, an interpretation of the food guide with some help in determining the desirable total daily calorie intake will be sufficient. These individuals merely want to know

what to do and should not be burdened with the specifics of why to do it.

Even though we do not yet know what is the best selection of foods to make insofar as fat in nutrition is concerned, we must stress balance and moderation in food intake to avoid overweight. We must also increase emphasis on the need for purposeful physical activity.

We can suggest that fats be included in moderation in the diet and be of vegetable, as well as animal origin, to supply a source of linoleic acid.

To get a good balance of starch to sugar in carbohydrate foods, we can point out the importance of whole wheat and enriched breads and cereals and vegetables, such as potatoes (not fried, if total fat is a problem) as sources of calories from carbohydrates. These foods should not be overlooked as sources of the additional calories needed when food energy requirements are especially high as for the teenage group.

Many homemakers are worried about serving milk to their families because of what they have heard about milk as a source of animal fat. We can reassure these homemakers that milk intake need not be cut below the suggested amounts in the Food Guide as long as the family members eat a well-balanced diet. Milk, including nonfat milk—dry or fluid, furnishes important protein, minerals, and vitamins. Considering that calcium is usually the nutrient most likely to be in shortest supply, milk should not be left out of meals.

And we can continue to stress the importance of a varied diet as our best assurance for achieving a nutritionally good diet. When certain classes of foods are omitted from meals, we are likely to shortchange ourselves nutritionally. Therefore, the food guide continues to be a good tool to use in helping people to choose food combinations that will meet their nutritional needs and maintain desirable weight.

### **Basic nutrition concepts**

For other groups of people who want to know why as well as how to select, a good place to begin is with the second of the basic concepts developed by the Interagency Committee on Nutrition Education.

**Food is made up of different nutrients needed for growth and health.**

- All nutrients needed by the body are available through food.
- Many kinds and combinations of food can lead to a well-balanced diet.
- No food, by itself, has all the nutrients needed for full health and growth.
- Each nutrient has specific uses in the body.
- Most nutrients do their best work in the body when teamed with other nutrients.

Programs can be developed that range from the very simple to the very scientific depending on the comprehension and interest of the group.

## IN CONCLUSION

The following ideas gleaned from Dr. Leverton's statement are pertinent for nutritionists and workers in allied professions who are concerned with the nutritional health of normal individuals.

- The food we eat is not the only factor influencing the utilization of fat by the body—heredity, activity, stress, and the aging process all play a role.

- Although (1) diets high in fat (lead to high blood lipids) are associated with cardiovascular disease and (2) vegetable fats high in linoleic acid lead to lowering blood cholesterol, extremes in the direction of either animal or vegetable fats in the diet are unwise.

- Other nutrients have a role in the metabolism of fats.

In light of our best knowledge at this time, the greatest service we can offer the millions of normal individuals in the U.S.—those who are not on modified diets prescribed by a licensed physician—is to encourage them to select and eat a diet based on current recommendations.

## MATERIALS

Listing of these materials is for the information of the reader and does not necessarily mean recommendation. Materials or information concerning materials may be obtained from the address given.

GPO—Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

INF—Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250.

### Applied nutrition

**Food and nutrition.** A series of articles on nutrition for school children written by nutritionists for the Grade Teacher Magazine, September 1964. Reprints of the series are available from Reprint Department, Grade Teacher, Leroy Avenue, Darien, Conn. Single copies, 15 cents; 20 or more copies, 10 cents each.

**The food you eat and heart disease.** Revised 1963. 12 pp. Public Health Service Publication No. 537. Health Information Series No. 89. Department of Health, Education and Welfare. Available from GPO, Washington, D. C. 20402. 10 cents.

## A Departure for NPN

Many of our readers write to us requesting bibliographies of nutrition materials for specific areas. We do not prepare bibliographies but simply call attention to materials as we learn of them.

In this issue of NPN, we are including the titles and possible availability of all the applied nutrition materials we have listed in the past 2 years. We hope this will be helpful.

**Guide to serving modified diets in a nursing home.** Clare Van Natta, 1964. 40 pp. State Department of Health, Olympia, Wash.

**Rhode Island diet guide.** Compiled by Rhode Island Department of Health in cooperation with Rhode Island Dietetic Association, Rhode Island Department of Social Welfare, Nutrition Council of Rhode Island, and the advice of Rhode Island Medical Society. June 1964. 111 pp. Available from any of the above-listed agencies, all located in Providence, R.I.

**Feeding your child from 3 to 6—in day-care centers.** 19 pp. Missouri Home Economics Association, Division of Health, Division of Welfare. Available from 669 South Florence St., Springfield, Missouri.

**Nutrition in action.** Ethel Austin Martin. 1963, 298 pp. Holt, Rinehart, and Winston, Inc., 383 Madison Avenue, New York 17, New York. \$5.

**Nutrition education in action.** Ethel Austin Martin. 1963, 135 pp. Holt, Rinehart and Winston, Inc., 383 Madison Avenue, New York 17, New York. \$3.95.

**Conserving the nutritive values in foods.** G-90 1963, 16 pp. Single copy free INF. GPO 10¢.

**Food for the young couple.** G-85. 1962, 16 pp. Single copy free INF. GPO 10¢.

## Bibliographies

**Supplement to Selected Films and Filmstrips on Food and Nutrition.** May 1964, 14 pp. Committee on Evaluation of Food and Nutrition Films and Filmstrips, Food and Nutrition Council of Greater New York, Inc. Available from Professor Orrea F. Pye, Nutrition Department, Teachers College, Columbia University, New York, N. Y. 10027. 25 cents.

**Selected References Related to Teen-age Nutrition.** 1964, 8 pp. Available from National Dairy Council, 111 North Canal Street, Chicago, Ill. 60606.